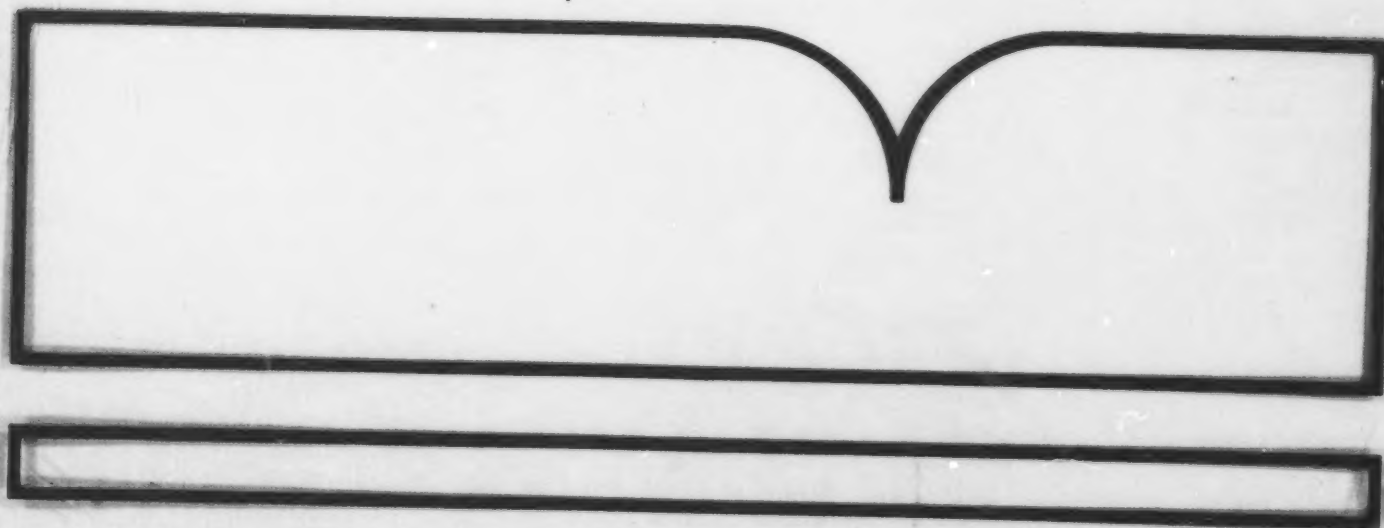


PB85-213601

Superfund Record of Decision
(EPA Region 1): Keefe Environmental Site
Epping, New Hampshire, November 1983

(U.S.) Environmental Protection Agency
Washington, DC

15 Nov 83



U.S. Department of Commerce
National Technical Information Service



PB85-213601



Superfund Record of Decision:

Keefe Environmental Site, NH

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SPRINGFIELD, VA. 22161

TECHNICAL REPORT DATA (Please read Instructions on the reverse before completing)		
1. REPORT NO. PA/ROD/RO1-83/002	2.	3. RECIPIENT'S ACCESSION NO. PB8 5 213601 /AS
4. TITLE AND SUBTITLE SUPERFUND RECORD OF DECISION: Keefe Environmental Site, NH		5. REPORT DATE 11/15/83
		6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S)	8. PERFORMING ORGANIZATION REPORT NO.	
9. PERFORMING ORGANIZATION NAME AND ADDRESS Same as box 12.		10. PROGRAM ELEMENT NO.
		11. CONTRACT/GRANT NO.
12. SPONSORING AGENCY NAME AND ADDRESS U. S. Environmental Protection Agency 401 "M" Street, S. W. Washington, D. C. 20460		13. TYPE OF REPORT AND PERIOD COVERED Final ROD Report
		14. SPONSORING AGENCY CODE 800/00
15. SUPPLEMENTARY NOTES		
16. ABSTRACT The Keefe Environmental Services (KES) site is located in a rural area in the Town of Epping, NH. The site is located on approximately seventeen acres of woodland off the north side of Exeter Road. The site is located in a State protected (Class A- no discharges above background) watershed with wetland areas draining to the Piscassic River. The Town of New Market has a water supply intake on the Piscassic River seven miles downstream from the site. The ground water aquifer is used as a water supply for ten residences located close by and is the major source of drinking water for approximately 2,000 persons within a three-mile radius of the site. The KES was designed and constructed as a chemical waste storage and bulking facility. The site contains a 700,000 gallon open storage lagoon with a 100 mil. polyethylene liner. During its period of operation, KES received over one million gallons of hazardous wastes including toluene, methanol, acetone, MEK, glycols, waste oils, waste alcohols, styrene cyanide and heavy metals. KES was cited on several occasions with health and safety violations before filing for bankruptcy in January 1981. Remedial actions included in the selected option are: removal of the contents of the lagoon for disposal offsite at a RCRA-regulated facility, and removal of the lagoon liner and adjacent highly contaminated soil for disposal at a RCRA-regulated facility. Estimated capital costs for this action are \$500,000 with no estimated annual O&M costs.		
17. KEY WORDS AND DOCUMENT ANALYSIS		
a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Record of Decision. Site Name: Keefe Environmental Site, NH Contaminated media: sw, soil Key contaminants: solvents (PCE,TCE, xylene), volatile organics, glycols, waste oils, alcohols, styrene, cyanide, heavy metals		
18. DISTRIBUTION STATEMENT	19. SECURITY CLASS (This Report) None	21. NO. OF PAGES 12
	20. SECURITY CLASS (This page) None	22. PRICE \$7.00



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

NOV 4 1983

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

Subject: Record of Decision for the Keefe Environmental
Services Site, Epping, New Hampshire

From: William N. Hedeman, Jr., Director
Office of Emergency and Remedial Response

To: Lee M. Thomas, Assistant Administrator
Office of Solid Waste and Emergency Response

The attached Record of Decision is presented for your authorization of Remedial Action at this site.

I am requesting your approval of the selection of the cost-effective remedial action for the Keefe Environmental Services site in Epping, New Hampshire. The recommended remedial alternative is the off-site transport and disposal of hazardous substances. The proposed remedy is cost-effective, helps protect public health, welfare and the environment and the remedy is consistent with the permanent remedy.

The design and bid documents for the proposed remedy are completed and by prompt approval of this remedy, it is possible to have the removal underway this calendar year. This would eliminate the possibility of another emergency action to prevent the overflow of the lagoon that might otherwise occur this fall.

Recommendation of this action is endorsed and supported by the Regional office, the State of New Hampshire Water Supply and Pollution Control Commission, the Town of Epping and the residents of Epping who attended the August 11, 1983, public meeting.

Attachments

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION I
BOSTON, MASSACHUSETTS 02203

Date: October 21, 1983

Subject: Record of Decision for Keefe Environmental Services Site,
Epping, New Hampshire

From: 
Michael R. Deland, Regional Administrator

To: Lee M. Thomas, Assistant Administrator
Office of Solid Waste and Emergency Response

Attached for your signature is copy of the Record of Decision (ROD) prepared for the Keefe Environmental Services site in Epping, New Hampshire. The analysis for the cost-effective remedial action was developed via a Fast Track Feasibility Study which focused on the clean up of the 700,000 gallon lagoon on site. This feasibility study was reviewed and found technically adequate and consistent with the National Contingency Plan by Region I and members of your staff. In addition a Remedial Investigation and Feasibility study will be completed by July, 1984 to address the ground and surface water contamination problems at the site.

This Record of Decision is endorsed and supported by the; Regional Office, the State of New Hampshire Water Supply and Pollution Control Commission, the Town of Epping and the residents of Epping who attended the August 11, 1983 public meeting.

Record of Decision
Remedial Action Alternative Selection

Site: Keefe Environmental Services Site, Epping, New Hampshire

Analysis Reviewed:

I have reviewed the following documents describing the analysis of cost-effective remedial actions developed for the Keefe Environmental Services site (KES).

- Fast Track Feasibility Study for KES waste site, Epping, New Hampshire, Tighe & Bond/SCI, Inc., July 29, 1983. Revised August 31, 1983.
- Staff summary and recommendation.

Description of Selected Option:

- Removal of the contents of the lagoon for disposal offsite at a facility in compliance with Subtitle C of the Resource Conservation and Recovery Act (RCRA).
- Removal of the lagoon liner and adjacent highly contaminated soil for disposal at a facility in compliance with Subtitle C of RCRA.

Declarations:

Consistent with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the National Contingency Plan (40 CFR Part 300), I have determined that the selected option is a feasible and cost-effective remedial action that is necessary to protect public health and the environment. I have also determined that the action being taken is consistent with the permanent remedy and is appropriate when balanced against the need to use Trust Fund money at other sites. I have determined that the off-site treatment and disposal of hazardous substances is more cost-effective than other alternatives and is, therefore, consistent with Section 101(24) of CERCLA.



Lee M. Thomas, Assistant Administrator
Office of Solid Waste and Emergency Response

4/15/83

Date

Remedial Alternative Selection
Keefe Environmental Services Site
Epping, New Hampshire

Background

The Keefe Environmental Services (KES) site (Figure 1-1) is located in a rural area in the Town of Epping, Rockingham County, New Hampshire. The site is located on approximately seventeen acres of woodland off the north side of Exeter Road (Old Route 101) approximately two miles southeast from the municipal center of Epping. The site is located in a State protected (Class A - no discharges above background) watershed with wetland areas draining to the Piscassic River. The Town of New Market has a water supply intake on the Piscassic River seven miles downstream from the site. The ground water aquifer is used as a water supply for ten residences located close by and is the major source of drinking water for approximately 2,000 persons within a three mile radius of the site. Approximately six to seven acres of the total seventeen acre site were actually developed. The KES site was designed and constructed as a chemical waste storage and bulking facility.

KES received over one million gallons of hazardous wastes including toluene, methanol, acetone, methyl ethyl ketone, glycols, waste oils, waste alcohols, styrene cyanide and heavy metals. KES was cited on several occasions, during the operational life of the facility, with health and safety violations.

KES site is on the final National Priorities List.

In January 1981, KES filed for bankruptcy and the site was abandoned. Due to threats to the environment the USEPA began an emergency cleanup action program at KES. Damaged drums were overpacked and over 4,100 drums were staged in rows according to general category.

In July 1982, EPA contracted to have a number of lab-packs, shock-sensitive materials, water reactive materials, and flammable materials disposed off-site. The contents of several above ground storage tanks were also disposed off-site during this period.

In October of 1982, EPA completed a Remedial Action Master Plan (RAMP) prepared by the zone contractor, Camp, Dresser & McKee (CDM). The RAMP recommended a fast track feasibility study to evaluate the remedial alternatives for the lagoon, since it could only be used for temporary storage. This study is in addition to the overall remedial investigation and feasibility study recommended for the site.

The KES site contains a 117 feet x 122 feet open storage lagoon with a depth generally ranging from approximately 7 feet in the southwest corner to 10 feet in the northwest corner. However, the normal level of liquid in the lagoon is approximately 4.5 feet deep. The lagoon has an estimated total capacity of approximately 700,000 gallons.

Much of the lagoon appears to be constructed above natural grade and therefore above the ground water table, however, this has not been confirmed. The walls of the lagoon were reportedly constructed from fill material excavated on-site. Because of the above-grade configuration surface water runoff would not enter the facility. The lagoon is lined with a 100 mil polyethylene liner installed by Schelgal Area Sealing Systems, Inc. of Rochester, N.Y. The present integrity of the synthetic liner is not known.

The FIT report noted that KES claimed that a leachate collection system was installed in the lagoon floor under the liner, but there is no evidence of such a system. There is evidence that liquids were dumped into the lagoon before the installation of the liner. In order to avoid overflows, the lagoon was drawn down by the EPA Emergency Response Team (ERT) on five separate occasions since March 1981, using a mobile carbon filter unit for a total cost in excess of \$250,000. Analyses of lagoon contents indicate that the lagoon is stratified into several distinct layers with each layer exhibiting varying concentrations of specific compounds and distinct color changes from one layer to another. Some compounds were found to have increasing concentrations with depth. These include methylene chloride, 1,1-dichloroethane, trichloroethylene, tetrachloroethylene, ethylbenzene, and xylenes. The lagoon was also found to have significant amounts of heavy metals, including arsenic, silver, copper, zinc, nickel, chromium and manganese. Cyanide was also present in the lagoon in concentrations ranging from less than 1 ppm at the surface to approximately 10 ppm at the bottom.

The Fast Track Feasibility Study was supervised by the NH WS&PCC under a Cooperative Agreement with the EPA. On July 29, 1983, EPA's Boston Regional Office released the "Preliminary Fast Track Feasibility Study for the Keefe Environmental Services Site Lagoon". This report was prepared by the consulting firm Tighe & Bond/SCI. The report was revised after the public comment period.

Community Relations

Copies of the feasibility study were placed in the Town offices and Town library for public review and comment. Press releases and notices were placed in the local newspapers announcing the public meeting to be held on August 11, 1983. The purpose of the meeting was to discuss the remedial options which have been considered and receive input from the affected community on the selection of the remedial action. A summary of the meeting is incorporated into the appendix of the revised feasibility study.

Few questions were asked about the selected remedy of removal and off-site disposal of the lagoon contents. It was agreed upon by all present that they would accept this remedy. Several residents voiced concern about on-site solidification, as well as the no action alternative. The meeting was sparsely attended and the proceedings were recorded for future consideration.

Enforcement - See attached.

Feasibility Study Alternatives

The object of the fast track feasibility study was to develop and evaluate source control remedial actions which would reduce and/or eliminate the direct contact hazards at the site emanating from the lagoon and any off-site migration that could result via surface runoff or ground water contamination from potential liner failure. Table 1 is a summary of the capital costs, annual operation and maintenance (O&M) costs, and present worth costs for the alternatives.

The remedial alternatives considered are:

0. No Action. The no action alternative was rejected due to the contamination of surface and ground waters from the overflow of the lagoon, and the threat to public health and the environment via ground water from the failure of the lagoon liner.
1. Continued Pump Down. This option would require periodic pump down and provision of site security. Lagoon wastes and contaminated soils will threaten the ground water. The costs of lowering the lagoon level is estimated at \$120,000 per year with a net present value of \$2.3 million after 20 years of operation.
2. Lagoon Covering. Several types of lagoon cover systems were evaluated as temporary remedial measures. The capital costs of these systems ranged from \$80,000 to \$400,000. However, replacement of the cover system would be required every five to ten years and the contaminated soils and lagoon contents would continue to threaten ground water quality.

3. On-site Solidification. The on-site solidification was evaluated and was found to be unacceptable due to the need to investigate the ground under the lagoon to determine the need for further remedial action and the uncertainty of the process effectiveness. At present, none of the companies that are developing solidification techniques could assure the stabilization of the lagoon with its wide mixture and high levels of volatile organic contaminants posing the risk of further release over time. The extended period of O&M contribute to the high present worth of this alternative.
4. Off-site Disposal. Off-site disposal was found to be the most cost-effective option that posed the least threat to the Class A watershed and the surrounding populations. This alternative includes the removal of the liquid contents of the lagoon for treatment and disposal at a facility in compliance with Subtitle C of the Resource Conservation and Recovery Act (RCRA). It will also include the removal of the lagoon's sludge, liner, and highly contaminated soil to a disposal facility in compliance with Subtitle C of RCRA.
5. On-Site Treatment & Discharge. The cost of on-site treatment for the disposal of the liquids from the lagoon, is based on a granular activated carbon treatment system that discharges directly to the adjacent brook. This cost estimate may be low since it does not account for any additional treatment that may be required due to the high concentrations of contaminants. Additional costs would not be available until after a pilot plant study. Although this treatment system is reliable at typical effluent discharge levels, the ability to adequately treat the effluent to drinking water standard levels or to obtain a variance to the discharge criteria for a Class A watershed will also impact the final cost of this alternative. The sludges and contaminated soils would be addressed in the overall site feasibility study. The costs of disposing the sludges and contaminated soils are not included in this summary. Therefore, this option is not cost effective when compared to alternative 4 since this option cost more and does provide less protection to public health and the environment.
6. On-Site Incineration. The alternative of on-site incineration for the disposal of the liquids from the lagoon, was rejected for cost and technical reasons. The relatively low BTU content and high percent of water makes this waste difficult to incinerate. In addition, the delays involved with permitting and site mobilization drastically reduce the cost-effectiveness of this alternative and raise the possibility of emergency pump downs in the interim. The sludges and contaminated soils would be addressed in the overall site feasibility study. The costs of disposing the sludges and contaminated soils are not included in this summary.

Recommended Action

The recommended alternative is off-site disposal of the liquid, sludge, liner, and highly contaminated soil from the lagoon. This alternative is the less expensive option that mitigates the threat to public health and the environment from the lagoon, with minimum impact on the overall site remedial investigation and feasibility study.

- 6 -

Table 1
Cost Analysis of Alternatives
Keefe Environmental Services
Epping, New Hampshire

Alternatives	Capital Costs	Annual O&M		(2) Present Worth	
	(S)	Operational (S)	Security/ (1) monitoring (S)	20 yr. (S)	30 yr. (S)
0. No Action					
1. Continued Pump Down	0	120,000	102,300 (3)	2,353,000	2,747,000
2. Lagoon Covering	80,000	28,000(7)	102,300	745,000	857,000
3. On-site solidification	570,000	32,200	34,800	1,293,000	1,412,000
4. Off-site Disposal	500,000(4)	0	0	500,000	500,000
5. On-site Treatment	625,000(5)	0	34,800	990,000	1,046,000
6. On-site incineration	1.1-1.6 million(6)	0	34,800	1.4-1.9 million	1.5-2.0 million

NOTES:

- (1) Security costs for 24 hours/day, 365 days/year at \$67,500/year. Monitoring of two streams and three groundwater monitoring wells quarterly for full priority pollutant analysis at \$34,800/year.
- (2) Discount rate used was 7 1/8% for EPA Region I.
- (3) Both monitoring and site security included.
- (4) The capital cost of \$500,000 includes actual estimates of approximately \$400,000 and a 25% contingency of \$100,000.
- (5) The capital cost of \$625,000 is the total cost of leasing a package unit for two to four months and includes the leasing and operational costs for the entire liquids removal operation. The total cost does not include the cost of disposing the sludges and contaminated soils, thus understating the total cost of on-site treatment.
- (6) The total cost does not include the cost of disposing the sludges and contaminated soils.
- (7) Includes replacement of cover every 10 years.

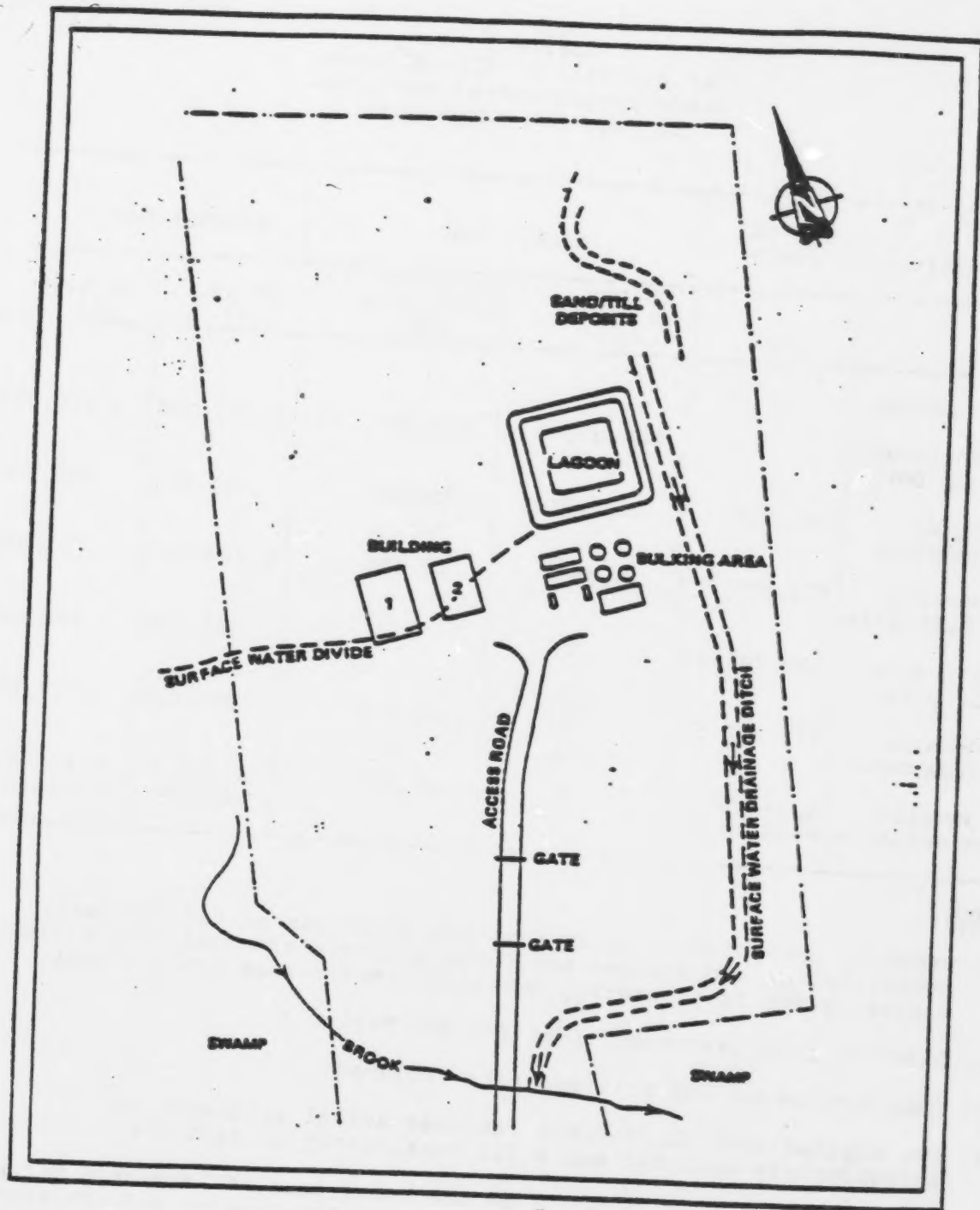


Figure 1-1 SITE PLAN: KEEFE ENVIRONMENTAL SERVICES, EPPING, NEW HAMPSHIRE